SANTA CRUZ BIOTECHNOLOGY, INC.

GPx-4 (N-18): sc-27529

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GPx-4, also known as phospholipid hydroperoxide glutathione peroxidase (PHGPx), is the only known antioxidant enzyme that reduces phospholipid hydroperoxides within membranes and lipoproteins, thus inhibiting lipid peroxidation. A number of pathophysiological states rely on peroxidation of lipids, suggesting that GPx-4 plays a crucial role in antioxidative defense. GPx-4 is expressed at low levels in a wide variety of organs with two distinct forms: L-GPx-4, which localizes in the mitochondria, and S-GPx-4, the cytosolic form. In some tissues, GPx-4 is more highly expressed, suggesting that GPx-4 is involved in more specific functions. For example, regulation of the enzyme in testicular tissue implies a necessary role for GPx-4 in sperm maturation. The gene encoding GPx-4 presents a number of different protein-binding domains, allowing regulation of expression to be influenced by Sp1, NF-Y and ApoER2, as well as other proteins. Therefore, complex interactions between a variety of proteins and the GPx-4 gene, in addition to interplay with fatty acids, cytokines and antioxidants, ultimately dictate the functional significance of GPx-4.

REFERENCES

1. Sneddon, A.A., et al. 2003. Regulation of selenoprotein GPx4 expression and activity in human endothelial cells by fatty acids, cytokinse and antioxidants. Atherosclerosis 171: 57-65.
2. Ufer, C., et al. 2003. Functional characterization of *cis*- and *trans*-regulatory elements involved in expresion of phospholipid hydroperoxide glutathione peroxidase. Nucleic Acids Res. 31: 4293-4303.
3. Zhao, L., et al. 2003. L-PHGPx expression can be suppressed by antisense oligoneucleotides. Arch. Biochem. Biophys. 417: 212-218.
4. Andersen, O.M., et al. 2003. Essential role of apolipoprotein E receptor-2 in sperm development. J. Biol. Chem. 278: 23989-23995.

CHROMOSOMAL LOCATION

Genetic locus: GPX4 (human) mapping to 19p13.3; Gpx4 (mouse) mapping to 10 C1.

SOURCE

GPx-4 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a cytoplasmic domain of GPx-4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-27529 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

GPx-4 (N-18) is recommended for detection of precursor GPx-4 and mitochondrial and cytoplasmic mature chains of GPx-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

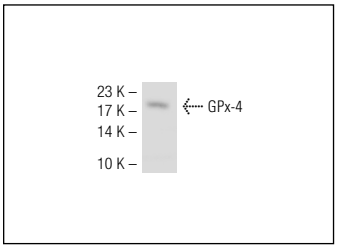
GPx-4 (N-18) is also recommended for detection of precursor GPx-4 and mitochondrial and cytoplasmic mature chains of GPx-4 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for GPx-4 siRNA (h): sc-44465, GPx-4 siRNA (m): sc-63302, GPx-4 shRNA Plasmid (h): sc-44465-SH, GPx-4 shRNA Plasmid (m): sc-63302-SH, GPx-4 shRNA (h) Lentiviral Particles: sc-44465-V and GPx-4 shRNA (m) Lentiviral Particles: sc-63302-V.

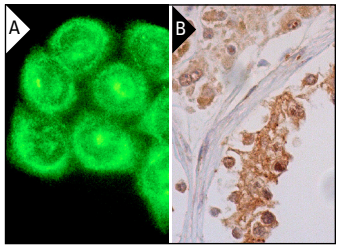
Molecular Weight of GPx-4: 21 kDa.

Positive Controls: mouse testis extract: sc-2405, HeLa whole cell lysate: sc-2200 or rat testis extract: sc-2400.

DATA



GPx-4 (N-18): sc-27529. Western blot analysis of GPx-4 expression in mouse testis tissue extract.



GPx-4 (N-18): sc-27529. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic, membrane and nuclear staining of cells in seminiferous ducts and cytoplasmic staining of Leydig cells (**B**).

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

MONOS Satisfaction Guaranteed

Try **GPx-4 (E-12): sc-166570** or **GPx-4 (D-3): sc-166437**, our highly recommended monoclonal alternatives to GPx-4 (N-18).